

What is claimed is:

1 1. A self-aligned fabrication process for a nozzle
2 plate of an inkjet print head, comprising the steps of:
3 providing a substrate having at least one activated
4 device thereon;
5 forming a first film on the substrate;
6 forming a second film on the first film;
7 defining the second film to form a convex portion
8 corresponding to the activated device, exposing a
9 part of the surface of the first film;
10 forming a third film on the exposed surface of the
11 first film, covering the convex portion;
12 removing the third film on the convex portion; and
13 etching the convex portion and the first film under the
14 convex portion to form a via.

1 2. The self-aligned fabrication process for a nozzle
2 plate of an inkjet print head as claimed in claim 1, wherein
3 the substrate is a silicon substrate.

1 3. The self-aligned fabrication process for a nozzle
2 plate of an inkjet print head as claimed in claim 1, wherein
3 the third film is made of spin-on-glass.

1 4. The self-aligned fabrication process for a nozzle
2 plate of an inkjet print head as claimed in claim 1, wherein
3 the third film on the convex portion is removed by etching
4 to expose the surface of the convex portion.

1 5. The self-aligned fabrication process for a nozzle
2 plate of an inkjet print head as claimed in claim 1, wherein
3 the third film on the convex portion is removed by
4 photolithography.

1 6. The self-aligned fabrication process for a nozzle
2 plate of an inkjet print head as claimed in claim 1, wherein
3 the via is formed by plasma dry etching.

1 7. The self-aligned fabrication process for a nozzle
2 plate of an inkjet print head as claimed in claim 6, wherein
3 the plasma dry etching uses oxygen as the main etching gas.

1 8. The self-aligned fabrication process for a nozzle
2 plate of an inkjet print head as claimed in claim 1, wherein
3 the first film is a polymer film.

1 9. The self-aligned fabrication process for a nozzle
2 plate of an inkjet print head as claimed in claim 1, wherein
3 the second film is a polymer film.

1 10. The self-aligned fabrication process for a nozzle
2 plate of an inkjet print head as claimed in claim 1, wherein
3 the activated device is a thin-film heater.

1 11. A self-aligned fabrication process for a nozzle
2 plate of an inkjet print head, comprising the steps of:
3 providing a silicon substrate having at least one
4 activated device thereon;
5 forming a first film on the substrate;
6 forming a second film on the first film;

7 defining the second film to form a convex portion
8 corresponding to the activated device, exposing a
9 part of the surface of the first film;
10 forming a spin-on-glass film on the exposed surface of
11 the first film, covering the convex portion;
12 removing the spin-on-glass film on the convex portion;
13 and
14 etching the convex portion and the first film under the
15 convex portion to form a via.

1 12. The self-aligned fabrication process for a nozzle
2 plate of an inkjet print head as claimed in claim 11,
3 wherein the spin-on-glass film on the convex portion is
4 removed by etching to expose the surface of the convex
5 portion.

1 13. The self-aligned fabrication process for a nozzle
2 plate of an inkjet print head as claimed in claim 11,
3 wherein the spin-on-glass film on the convex portion is
4 removed by photolithography.

1 14. The self-aligned fabrication process for a nozzle
2 plate of an inkjet print head as claimed in claim 11,
3 wherein the via is formed by plasma dry etching.

1 15. The self-aligned fabrication process for a nozzle
2 plate of an inkjet print head as claimed in claim 14,
3 wherein the plasma dry etching uses oxygen as the main
4 etching gas.

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1 16. The self-aligned fabrication process for a nozzle
2 plate of an inkjet print head as claimed in claim 11,
3 wherein the first film is a polymer film.

1 17. The self-aligned fabrication process for a nozzle
2 plate of an inkjet print head as claimed in claim 11,
3 wherein the second film is a polymer film.

1 18. The self-aligned fabrication process for a nozzle
2 plate of an inkjet print head as claimed in claim 11,
3 wherein the activated device is a thin-film heater.